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RAW SEQUENCE LISTING DATE: 11/09/2000
 PATENT APPLICATION: US/09/695,795 TIME: 11:41:58

Input Set : A:\JHUI650-2.ST25.txt
 Output Set: N:\CRF3\11092000\I695795.raw

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3 <110> APPLICANT: JOHN HOPKINS UNIVERSITY SCHOOL OF MEDICINE
4   Jeffrey, Rothstein
5   Jackson, Mandy
6   Lin, Glenn
7   Law, Robert
8   Orlov, Irina
10 <120> TITLE OF INVENTION: GLUTAMATE TRANSPORTER ASSOCIATED PROTEINS AND METHODS OF USE THEREOF
12 <130> FILE REFERENCE: JHUI650-2
C--> 14 <140> CURRENT APPLICATION NUMBER: US/09/695,795
C--> 14 <141> CURRENT FILING DATE: 2000-10-23
14 <150> PRIOR APPLICATION NUMBER: 60/161,007
15 <151> PRIOR FILING DATE: 1999-10-23
17 <160> NUMBER OF SEQ ID NOS: 22
19 <170> SOFTWARE: PatentIn version 3.0
21 <210> SEQ ID NO: 1
22 <211> LENGTH: 7240
23 <212> TYPE: DNA
24 <213> ORGANISM: Rattus
26 <220> FEATURE:
27 <221> NAME/KEY: CDS
28 <222> LOCATION: (1)..(7164)
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33 1                               5                               10                               15
35 ggc cag tac agt gac atc aac aac cgc tgg gac ctg ccc gac tca gat      96
36 Gly Gln Tyr Ser Asp Ile Asn Asn Arg Trp Asp Leu Pro Asp Ser Asp
37 20                               25                               30
39 tgg gac aat gac agc agt tca gcc cgc ctc ttt gag agg tcc aga att      144
40 Trp Asp Asn Asp Ser Ser Ser Ala Arg Leu Phe Glu Arg Ser Arg Ile
41 35                               40                               45
43 aag gcc ctg gca gat gag cga gaa gcc gtg cag aag aaa acc ttc acc      192
44 Lys Ala Leu Ala Asp Glu Arg Glu Ala Val Gln Lys Lys Thr Phe Thr
45 50                               55                               60
47 aag tgg gtg aac tcc cac ctg gcc cgg gtg aca tgc cgg gtg gga gac      240
48 Lys Trp Val Asn Ser His Leu Ala Arg Val Thr Cys Arg Val Gly Asp
49 65                               70                               75                               80
51 ctg tac agc gac ctg cgg gac ggg cgc aac ctc ctg agg ctc ctg gag      288
52 Leu Tyr Ser Asp Leu Arg Asp Gly Arg Asn Leu Leu Arg Leu Leu Glu
53 85                               90                               95
55 gtg ctc tgg gga gag acc ctg cca aaa ccc acc aag ggc cgg atg cgg      336
56 Val Leu Ser Gly Glu Thr Leu Pro Lys Pro Thr Lys Gly Arg Met Arg
57 100                              105                              110
59 att cac tgc ctg gag aat gtc gac aaa gca ctg cag ttc ctg aag gag      384
60 Ile His Cys Leu Glu Asn Val Asp Lys Ala Leu Gln Phe Leu Lys Glu
61 115                              120                              125
63 cag aag gtg cac ctg gaa aac atg ggc tcc cac gac att gtg gat ggg      432

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64 Gln Lys Val His Leu Glu Asn Met Gly Ser His Asp Ile Val Asp Gly
65      130      135      140
67 aac cac cgt ctg acc ctt ggg cta gtg tgg acc atc atc ctc cga ttt      480
68 Asn His Arg Leu Thr Leu Gly Leu Val Trp Thr Ile Ile Leu Arg Phe
69 145      150      155      160
71 cag atc caa gac atc agt gtg gag aca gaa gac aac aag gag aag aag      528
72 Gln Ile Gln Asp Ile Ser Val Glu Thr Glu Asp Asn Lys Glu Lys Lys
73      165      170      175
75 tca gcc aag gat gcc ctg ctg ctg tgg tgc cag atg aag act gca ggg      576
76 Ser Ala Lys Asp Ala Leu Leu Leu Trp Cys Gln Met Lys Thr Ala Gly
77      180      185      190
79 tat ccc aat gtc aat gtg cac aac ttt acc acc agt tgg aga gat ggg      624
80 Tyr Pro Asn Val Asn Val His Asn Phe Thr Thr Ser Trp Arg Asp Gly
81      195      200      205
83 ctg gcc ttt aat gcc att gtg cac aaa cac cgg cca gac ctg ttg gat      672
84 Leu Ala Phe Asn Ala Ile Val His Lys His Arg Pro Asp Leu Leu Asp
85      210      215      220
87 ttt gag tcc ctg aag aag tgt aac gca cac tac aat ctg cag aat gct      720
88 Phe Glu Ser Leu Lys Lys Cys Asn Ala His Tyr Asn Leu Gln Asn Ala
89 225      230      235      240
91 ttc aat ctg gct gaa aag gaa ctt ggc ctg acg aag ctc ctg gat cct      768
92 Phe Asn Leu Ala Glu Lys Glu Leu Gly Leu Thr Lys Leu Leu Asp Pro
93      245      250      255
95 gaa gat gtg aac gta gac caa ccc gat gag aag tcc atc atc acc tac      816
96 Glu Asp Val Asn Val Asp Gln Pro Asp Glu Lys Ser Ile Ile Thr Tyr
97      260      265      270
99 gtg gcc act tac tac cac tac ttc tcg aag atg aag gcc ctg gct gtg      864
100 Val Ala Thr Tyr Tyr His Tyr Phe Ser Lys Met Lys Ala Leu Ala Val
101      275      280      285
103 gaa ggc aaa agg att ggc aag gtc ctg gac cat gcc atg gag gca gaa      912
104 Glu Gly Lys Arg Ile Gly Lys Val Leu Asp His Ala Met Glu Ala Glu
105      290      295      300
107 cac ctg gta gag aaa tat gag tcc ctg gcc tct gaa ctg ctg cag tgg      960
108 His Leu Val Glu Lys Tyr Glu Ser Leu Ala Ser Glu Leu Leu Gln Trp
109 305      310      315      320
111 atc gag caa acg att ggg acc ttc aat gac cga cag ctg gcc aac tcc      1008
112 Ile Glu Gln Thr Ile Gly Thr Phe Asn Asp Arg Gln Leu Ala Asn Ser
113      325      330      335
115 ctg agt ggc gtc cag aac cag ctg cag tct ttc aat tcc tac cgc acg      1056
116 Leu Ser Gly Val Gln Asn Gln Leu Gln Ser Phe Asn Ser Tyr Arg Thr
117      340      345      350
119 gtg gag aag cca ccc aag ttc aca gag aaa ggg aac ttg gag gtg ttg      1104
120 Val Glu Lys Pro Pro Lys Phe Thr Glu Lys Gly Asn Asn Glu Val Leu
121      355      360      365
123 ctc ttc acc atc cag agt aag ctg cgg gcc aac aac cag aaa gtc tac      1152
124 Leu Phe Thr Ile Gln Ser Lys Leu Arg Ala Asn Asn Gln Lys Val Tyr
125      370      375      380
127 aca cca cgc gaa ggc cgg ctc atc tcg gac atc aac aag gcc tgg gag      1200
128 Thr Pro Arg Glu Gly Arg Leu Ile Ser Asp Ile Asn Lys Ala Trp Glu

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131	cgg cta gag aaa gcc gaa cat gag cga gag ctg gcc ctg cgc acg gag	1248						
132	Arg Leu Glu Lys Ala Glu His Glu Arg Glu Leu Ala Leu Arg Thr Glu							
133		405	410	415				
135	ctg atc cgc cag gag aag ctg gag caa ctg gct gct cgc ttc gac cgc	1296						
136	Leu Ile Arg Arg Glu Lys Leu Glu Gln Leu Ala Ala Arg Phe Asp Arg							
137		420	425	430				
139	aag gct gcc atg cgg gag acc tgg ctc agt gag aac cag cgc ctc gtc	1344						
140	Lys Ala Ala Met Arg Glu Thr Trp Leu Ser Glu Asn Gln Arg Leu Val							
141		435	440	445				
143	tcg cag gac aac ttt ggc ctg gag ctg gca gca gtg gag gca gca gtg	1392						
144	Ser Gln Asp Asn Phe Gly Leu Glu Leu Ala Ala Val Glu Ala Ala Val							
145		450	455	460				
147	cgg aag cat gaa gcc att gag aca gac att gtg gcc tac agc ggc cgg	1440						
148	Arg Lys His Glu Ala Ile Glu Thr Asp Ile Val Ala Tyr Ser Gly Arg							
149	465	470	475	480				
151	gtg caa gcg gtg gac gcc gta gcc gca gaa ctg gcc gct gag cat tac	1488						
152	Val Gln Ala Val Asp Ala Val Ala Ala Glu Leu Ala Ala Glu His Tyr							
153		485	490	495				
155	cat gac att aag cgc att gcg gcg cgg cag aac aac gtg gcc cgc ctc	1536						
156	His Asp Ile Lys Arg Ile Ala Ala Arg Gln Asn Asn Val Ala Arg Leu							
157		500	505	510				
159	tgg gac ttc tta cga gag atg gtg gcc gcc cgc cgt gag cgc ctc ctt	1584						
160	Trp Asp Phe Leu Arg Glu Met Val Ala Ala Arg Arg Glu Arg Leu Leu							
161		515	520	525				
163	ctc aac ctg gag ctg cag aag gtg ttt cag gac ctg ctc tac ctc atg	1632						
164	Leu Asn Leu Glu Leu Gln Lys Val Phe Gln Asp Leu Leu Tyr Leu Met							
165		530	535	540				
167	gac tgg atg gca gag atg aag ggc cgg ctg cag tct cag gac cta ggc	1680						
168	Asp Trp Met Ala Glu Met Lys Gly Arg Leu Gln Ser Gln Asp Leu Gly							
169	545	550	555	560				
171	aag cat ctg gct gga gtg gaa gat cta ctg caa cta cac gaa ctg gtg	1728						
172	Lys His Leu Ala Gly Val Glu Asp Leu Leu Gln Leu His Glu Leu Val							
173		565	570	575				
175	gag gcg gac att gca gtt cag gct gag agg gtg cga gcg gtc agc gcc	1776						
176	Glu Ala Asp Ile Ala Val Gln Ala Glu Arg Val Arg Ala Val Ser Ala							
177		580	585	590				
179	tct gcc ctg cgc ttc tgc gac cca ggg aaa gag tat aga cct tgc ggc	1824						
180	Ser Ala Leu Arg Phe Cys Asp Pro Gly Lys Glu Tyr Arg Pro Cys Gly							
181		595	600	605				
183	cgg cag cta gtg tca gag agg gta gcc act ctg gag cag agc tat gag	1872						
184	Pro Gln Leu Val Ser Glu Arg Val Ala Thr Leu Glu Gln Ser Tyr Glu							
185		610	615	620				
187	gcc ctg tgc gaa ttg gca gca act cga agg gcc cga ctg gaa gag tcc	1920						
188	Ala Leu Cys Glu Leu Ala Ala Thr Arg Arg Ala Arg Leu Glu Glu Ser							
189	625	630	635	640				
191	cgt cgt ctc tgg agg ttc ctc tgg gaa gtg ggt gag gcc gag gcc tgg	1968						
192	Arg Arg Leu Trp Arg Phe Leu Trp Glu Val Gly Glu Ala Glu Ala Trp							
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197				660					665					670			
199	ctg	act	ggt	gtc	ctc	cgc	ctg	ctc	aat	aaq	cac	aca	gcc	cta	cgg	ggt	2064
200	Leu	Thr	Gly	Val	Leu	Arg	Leu	Leu	Asn	Lys	His	Thr	Ala	Leu	Arg	Gly	
201			675					680					685				
203	gag	atg	agt	ggc	cgc	ctg	ggg	ccc	ctg	aag	ctc	acc	ctg	gaa	caa	ggt	2112
204	Glu	Met	Ser	Gly	Arg	Leu	Gly	Pro	Leu	Lys	Leu	Thr	Leu	Glu	Gln	Gly	
205		690					695					700					
207	cag	cag	tta	ggt	gcc	gag	ggc	cac	cct	gga	gct	aac	caa	gcc	tca	acc	2160
208	Gln	Gln	Leu	Val	Ala	Glu	Gly	His	Pro	Gly	Ala	Asn	Gln	Ala	Ser	Thr	
209	705				710						715					720	
211	cgt	gca	gca	gag	ctc	cag	gcc	cag	tgg	gag	cga	cta	gaa	gcc	ctg	gcc	2208
212	Arg	Ala	Ala	Glu	Leu	Gln	Ala	Gln	Trp	Glu	Arg	Leu	Glu	Ala	Leu	Ala	
213				725						730				735			
215	gag	gag	cga	gcc	cag	cgg	cta	gca	cag	gct	gcc	agc	ctc	tac	cag	ttc	2256
216	Glu	Glu	Arg	Ala	Gln	Arg	Leu	Ala	Gln	Ala	Ala	Ser	Leu	Tyr	Gln	Phe	
217			740					745					750				
219	cag	gca	gat	gcc	aat	gac	atg	gag	gct	tgg	ttg	gtg	gac	gca	cta	cgc	2304
220	Gln	Ala	Asp	Ala	Asn	Asp	Met	Glu	Ala	Trp	Leu	Val	Asp	Ala	Leu	Arg	
221			755				760						765				
223	ctg	gta	tct	agc	cct	gag	gta	ggg	cac	gat	gag	ttc	tcc	acg	cag	gcc	2352
224	Leu	Val	Ser	Ser	Pro	Glu	Val	Gly	His	Asp	Glu	Phe	Ser	Thr	Gln	Ala	
225		770				775						780					
227	ctg	gcc	agg	cag	cac	agg	gcc	ctt	gag	gag	gag	atc	cga	gcc	cac	cgg	2400
228	Leu	Ala	Arg	Gln	His	Arg	Ala	Leu	Glu	Glu	Glu	Ile	Arg	Ala	His	Arg	
229	785				790					795					800		
231	cct	aca	ctg	gat	gcc	ttg	agg	gag	cag	gct	gca	gcc	ctg	cca	cct	gca	2448
232	Pro	Thr	Leu	Asp	Ala	Leu	Arg	Glu	Gln	Ala	Ala	Ala	Leu	Pro	Pro	Ala	
233				805					810					815			
235	ctg	agc	cac	aca	cct	gag	gta	cag	ggc	agg	gtg	ccc	act	ctg	gag	cag	2496
236	Leu	Ser	His	Thr	Pro	Glu	Val	Gln	Gly	Arg	Val	Pro	Thr	Leu	Glu	Gln	
237			820					825					830				
239	cac	tat	gag	gag	ctg	cag	gcc	cgg	gca	ggt	gag	cgt	gca	cga	gcc	ctg	2544
240	His	Tyr	Glu	Glu	Leu	Gln	Ala	Arg	Ala	Gly	Glu	Arg	Ala	Arg	Ala	Leu	
241			835				840					845					
243	gaa	gca	gcc	ctg	gcg	ttc	tat	acc	atg	ctc	agc	gag	gcc	ggg	gct	tgt	2592
244	Glu	Ala	Ala	Leu	Ala	Phe	Tyr	Thr	Met	Leu	Ser	Glu	Ala	Gly	Ala	Cys	
245		850				855						860					
247	ggg	ctc	tgg	gta	gag	gag	aag	gag	cag	tgg	ctc	aac	ggg	ctg	gcc	cta	2640
248	Gly	Leu	Trp	Val	Glu	Glu	Lys	Glu	Gln	Trp	Leu	Asn	Gly	Leu	Ala	Leu	
249	865				870					875				880			
251	cct	gag	cgc	ctg	gag	gac	ccg	gag	gtg	gtc	caa	cag	agg	ttt	gag	acc	2688
252	Pro	Glu	Arg	Leu	Glu	Asp	Pro	Glu	Val	Val	Gln	Gln	Arg	Phe	Glu	Thr	
253				885					890					895			
255	tta	gag	ccc	gaa	atg	aac	gcc	ctg	gct	gca	cgg	att	act	gct	gtc	agt	2736
256	Leu	Glu	Pro	Glu	Met	Asn	Ala	Leu	Ala	Ala	Arg	Ile	Thr	Ala	Val	Ser	
257			900					905					910				
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263	atc	att	ggc	acc	cag	gag	cag	ctc	aac	caa	agg	tgg	caq	cag	ttc	agg	2832
264	Ile	Ile	Gly	Thr	Gln	Glu	Gln	Leu	Asn	Gln	Arg	Trp	Gln	Gln	Phe	Arg	
265		930					935					940					
267	tcc	ctg	gca	ggt	ggc	aaa	aag	gca	gct	ctg	aca	tca	gcc	ctg	agc	atc	2880
268	Ser	Leu	Ala	Gly	Gly	Lys	Lys	Ala	Ala	Leu	Thr	Ser	Ala	Leu	Ser	Ile	
269	945				950					955					960		
271	cag	aat	tac	cac	cta	gag	tgc	aca	gag	acc	cag	gcc	tgg	atg	aga	gaa	2928
272	Gln	Asn	Tyr	His	Leu	Glu	Cys	Thr	Glu	Thr	Gln	Ala	Trp	Met	Arg	Glu	
273					965				970						975		
275	aag	acc	aag	gtc	att	gag	tct	acc	cag	gac	cta	ggc	aat	gat	cta	gct	2976
276	Lys	Thr	Lys	Val	Ile	Glu	Ser	Thr	Gln	Asp	Leu	Gly	Asn	Asp	Leu	Ala	
277			980					985					990				
279	ggt	gtg	ctg	gcc	ctg	cag	cgg	aag	ctg	gca	ggc	act	gag	aga	gat	ctg	3024
280	Gly	Val	Leu	Ala	Leu	Gln	Arg	Lys	Leu	Ala	Gly	Thr	Glu	Arg	Asp	Leu	
281			995				1000						1005				
283	gaa	gcc	atc	tct	gcc	cgg	gtg	ggt	gag	ctg	acc	caa	gag	gca	aat		3069
284	Glu	Ala	Ile	Ser	Ala	Arg	Val	Gly	Glu	Leu	Thr	Gln	Glu	Ala	Asn		
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293		1040					1045					1050					
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296	Met	Arg	Arg	Arg	Glu	Glu	Ser	Leu	Gly	Glu	Ala	Arg	Arg	Leu	Gln		
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303	aca	cag	act	gct	gta	gcc	tct	gag	gaa	gga	cca	gcc	acc	ctt	cca		3294
304	Thr	Gln	Thr	Ala	Val	Ala	Ser	Glu	Glu	Gly	Pro	Ala	Thr	Leu	Pro		
305		1085					1090					1095					
307	gag	gca	gaa	gcc	ctc	tta	gcc	cag	cat	gca	gct	ctg	cgg	gga	gag		3339
308	Glu	Ala	Glu	Ala	Leu	Leu	Ala	Gln	His	Ala	Ala	Leu	Arg	Gly	Glu		
309		1100					1105					1110					
311	gtg	gag	aga	gcc	cag	agc	gag	tac	agc	cgc	ctc	agg	acc	ttg	ggc		3384
312	Val	Glu	Arg	Ala	Gln	Ser	Glu	Tyr	Ser	Arg	Leu	Arg	Thr	Leu	Gly		
313		1115					1120					1125					
315	gag	gag	gtg	acc	aga	gac	cag	gct	gat	ccc	caa	tgc	ctc	ttc	ctc		3429
316	Glu	Glu	Val	Thr	Arg	Asp	Gln	Ala	Asp	Pro	Gln	Cys	Leu	Phe	Leu		
317		1130					1135					1140					
319	aga	cag	agg	ctg	gaa	gcc	ctt	gga	acc	ggc	tgg	gag	gag	ctg	ggt		3474
320	Arg	Gln	Arg	Leu	Glu	Ala	Leu	Gly	Thr	Gly	Trp	Glu	Glu	Leu	Gly		
321		1145					1150					1155					
323	cgc	atg	tgg	gag	agc	cgg	caa	ggc	cgc	ttg	gcc	caa	gcc	cat	ggc		3519
324	Arg	Met	Trp	Glu	Ser	Arg	Gln	Gly	Arg	Leu	Ala	Gln	Ala	His	Gly		

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L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date
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